DOCUMENT RESUME

ED 370 594 IR 055 047

AUTHOR Dana, Ann S.
TITLE Introduction of Technology into the Art Curriculum.
PUB DATE 93
NOTE 12p.; In: Visual Literacy in the Digital Age: Selected Readings from the Annual Conference of the International Visual Literacy Association (25th, Rochester, New York, October 13-17, 1993); see IR 055 055.
PUB TYPE Reports - Descriptive (141) -- Reports - Evaluative/Feasibility (142) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Animation; *Art Education; *Computer Assisted Instruction; Computer Graphics; *Curriculum Development; Editing; Educational Objectives; *Educational Technology; Elementary School Students; Elementary Secondary Education; Film Production; Grade 3; Junior High Schools; Middle Schools; Program Evaluation; School Districts; *Technological Advancement; Videotape Recordings; *Visual Arts; Visual Literacy
IDENTIFIERS Middle School Students

ABSTRACT

Two initiatives to introduce technology into the art curriculum of a school district are described. The initiatives gave permission for money to be spent on third-grade and middle-school programs. Both were designed around the existing art curriculum and attempted to take advantage of hardware the district already owned. In the third-grade program, the educational objective was to introduce students to computers and software as tools and media for creating art through computer graphics. Students completed the five lessons and were videotaped as they presented their art work to an audience. The middle school initiative gave advanced students an experience that was relevant to the commercial uses of art. Students learned to create and alter computer images and to create animation. Evaluation found the third-grade initiative successful because of excellent communication and cooperation, and expansion to the district's other schools was recommended. An increased level of art literacy was seen in middle school students, and the continuation of the program was recommended. A concept map is attached. (Contains 10 references.) (SLD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

ED 370 594

Introduction of Technology into the Art Curriculum

by Ann Dana

Northern Illinois Univesrity
Hindsdale Middle School
P.O. Box 209
Hindsdale, IL 60522-0209

IROSSO47

PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Alice Walker

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC).

BEST COPY AVAILABLE

Introduction of Technology into the Art Curriculum

Ann S. Dana

Integration of technology into the curriculum is necessary for a better understanding of its importance to the students of today (DeMichiell, 1990; Gibbons, 1988; Goodson, 1991). According to Hunter (1989) there is a need for students to be capable of visual patterning. By incorporating this training into the curricula a greater awareness will be the result (p. 236). Thornburg (1991) stated that the classroom computer has become an expressive tool for discovery and true learning, only limited by the extent of one's imagination. Nancy Scali (1989) remarked that a child's visual expression supports healthy self-esteem. Scali proposed that computers and art provide the extension for a child to develop creative powers and positive visual communication. Ragan and Rezabek (1987) expressed that as the computer allowed the user to adjust and revise, engage in precision activities, duplicate images, activate memory capabilities, and manipulate images, it was a tool for use in visual literacy worth exploring. Gunderson (1993) stated that students can be taught art criticism, aesthetics, art history and studio projects using many different media including technology. Metallinos (1993) stated that art created by a particular society serves at least three major purposes. These are to illustrate the basic values and beliefs of the society, to promote the society's basic philosophies, and to fulfill the needs, aspirations, and desires of the people of the society (p. 456).

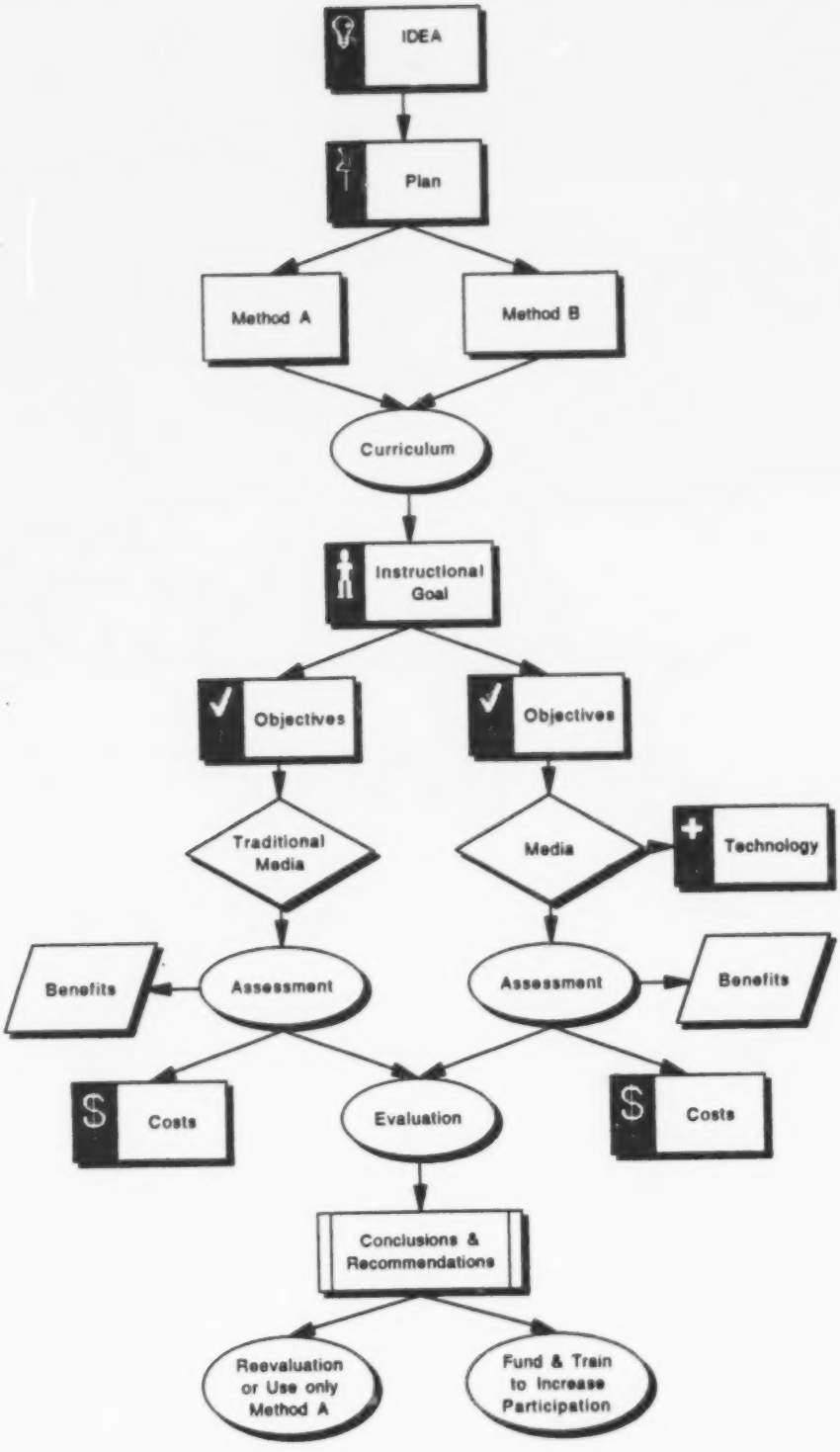
Technology will have a bearing on the future careers of the children of today. School districts have a financial burden, feeling the pressure of the public to be accountable. These two factors helped to influence the development of initiatives to put technology into the curriculum. Historically the school district felt justified to be equitable in the distribution of funding and in the purchasing of technological tools, hardware and software.

Background

Planning the Initiative

The initiatives gave permission by the school board to spend money differently, favoring one class or one school instead of equitable distribution over the eight district schools. An initiative starts with an idea for using technology as a tool to help to present or support curriculum. The initiative presents a methodology for change. A requirement is that the traditional methods must be evaluated and compared to an evaluation of the newer method, including costs, time spent, as well as assessment of the learning. A format was generated for teachers to use to help in the planning. The district technology specialists acted as guides in the process, helped refine the plans, suggested the best technology to use, and well costed out the plan. When the plan was refined, it was presented to the Board of Education who approved or suggested the need for refinement.

IR055047



Concept Map: Plan of an Initiative

BEST COPY AVAILABLE

Criteria

The district developed form provided the outline. Applicants filled in the instructional goal, the objectives, itemized costs, and listed the benefits of both the traditional method (Method A) and the planned method (Method B). they added what would be different using technology. The procedure for assessment of both methods had to be outlined. An important criteria in the initiative was what was or what would be the benefit to the students. The costs of the technology component were added by the technology specialists who also projected the costs to the district that could be expected if the initiative proved to be of greater benefit to the students than the traditional method.

Curriculum

Two of the initiatives that were approved involved the art curriculum. The district's art coordinator designed the initiatives with involvement of the middle school art teacher and the director of technology. Computer aides were also trained to oversee the labs. Both art initiatives were designed around the existing art curriculum that emphasizes the elements and principles of art.

Inservice

Inservice plans were considered in costing out the initiative. Planning time, reviewing software, training of staff, hiring substitutes were all considered. The district has a negotiated hourly amount that is paid for time spent over and above the school day. Some of the training was conducted by the technology specialists without any additional costs.

Costs

The cost of the art initiative at the third grade level at its inception was zero. There were ten mouse units available to be borrowed and the school also borrowed a lab pack of the software that was not being used at the Middle School. Due to the success of the initiative, the PTO purchased mouse units, lab packs of the software and color ribbons to be able to continue to use the graphics program after the initiative was concluded. If the initiative were to be a district program the total cost would be $4154, a cost of $11.87 per student.

The cost of the Middle School Art Initiative included the cost of the software, the color printer with additional color cartridges, and the scanner. The Macintosh LC II's were already in place. It amounted to $22.49 per student. If a separate lab with 15 computers were to be purchased, the cost would be $72.36 per student.

Hardware

The district computers consist mainly of the Apple II family. Most of the eight schools labs of 12 to 24 systems. The offices are all Macintosh and a recent addition was a writing lab of 15 Macintosh computers at the Middle School. Nine of the computers are LC's and were selected for the Middle School Art initiative. The Middle School initiative also involved the acquisition of a scanner and a color printer.

The writing lab is equipped with a Macintosh Quadra 950 that networks all of the computers and a laser printer. Because of the Quadra and the network, students' art files could be stored, retrieved, edited, and refined. Projects of more than one

session could be accomplished. Other hardware in the middle school lab included a laser disc player with a monitor.

Software

Dazzle Draw by Broderbund, for the Apple IIe or Apple IIgs with a color monitor and a mouse, was used in the third grade art initiative. The software has the capability of using 16 colors plus color patterns that can be edited. There are four brush sizes and shapes. Shapes can be outlines or solid. Tools include Mirror, Shapes, Fill, Zoom, Spray Paint, and Text. There is an undo feature and drawings can be printed in color with an Imagewriter II printer with a colored ribbon.

EZ-Color Paint by MECC, for the Macintosh, has 256 colors, many palettes of colors depicting differences such as winter, earth tones, rainbow. The tools are more sophisticated but easy to learn. The graphic interface of the Macintosh gives easy access to all of the capabilities. It is possible to edit tints of colors.

Third Grade

The elementary initiative involved two third grade classes and their teachers, the art teacher, the district's technology director, and the computer lab aide. Lessons were developed coordinating the principles and elements of art as taught in the art curriculum for that grade level. The software used was *Dazzle Draw* by Broderbund on Apple IIe computers equipped with a mouse and color monitor. This initiative lasted six weeks, including the presentation of the students' projects to their parents.

Elements of Art

The educational objective for the elementary project was to introduce students to computers and computer software as tools and media for creating art. These were in addition to the traditional art tools and media, brushes, pencils and so forth to create drawings, watercolors, sculptures, and others. It was to provide an opportunity for the students to practice artistic skill and concepts through computer graphics.

At the time of the planning there was no sequential curriculum based studio experience for elementary computer graphics. The experience would be an opportunity to assess the feasibility and place of computer graphics in the art curriculum.

Reinforced Curriculum

The art curriculum as introduced by the art teacher involved media and color theory such as warm, cold, complementary, elements of art such as balance, and principles of art such as rhythm. Students used a variety of media including cray pas, poster paint, water colors, crayons, and clay to create individual art works. The benefit of adding the computer as a media was to add more diversity in approaches students use. Experimentation would be favored over the acceptance of a first effort. The computer allowed for the reinforcement of learned elements and principles in an arena that encouraged the practicing of artistic skills.

The series of lessons in this initiative were designed to give students several experiences with the technology (hardware and software) and to reinforce the lessons previously experienced in the art room. The first lesson introduced the mouse and the software. Using the text tool they

learned to click and select various choices. The final project was to type the words tiny, huge, round, and happy and change the size and style of a font to have the words appropriately displayed. Experimentation came from those students who discovered how to color the background or build boxes around their words. In this software the letters can only be white. When students returned to their classes, they filled out an evaluation sheet that briefly asked them what they had learned or were able to do.

The second lesson, a lesson on symmetry was a follow-up to an off-line art period experience. The mirror tool was used and students were introduced to the color possibilities. They were to choose either warm or cool colors. A discussion took place before the computer experience on color theory with students reviewing the differences between warm, cool, and complementary colors. A color wheel was on display.

The third lesson reinforced shapes and balance composition concepts. The computer experience introduced the shapes and the fill tools. They also learned they could edit the designs that could be used to fill the shapes.

The next experience was a review of complementary colors that they were to use in the creation of a background to which they would add a figure or figures in a bright color to show contrast.

The final lesson was a Cityscape, a lesson on perception of things that could be drawn to represent the city. This culminating project was assigned in coordination with an art/social studies emphasis on Chicago. In art class, students depicted a Chicago place, person or event in their choice of media. The computer assignment also had an element of choice of cityscape subject matter and use of graphics media.

Extension of the Curriculum

The students' art work was printed and compared with work done in the art room. Computer graphics assignments gave students opportunities to use concepts introduced in art in a different context. The graphics pictures were simpler and less detailed than art room work. Computer graphic tools and capabilities for color and texture manipulation resulted in richer and more sophisticated use of these elements than possible with art class media. On the computer, as in the art room, students appreciated the opportunity for "learning to make their own things."

Students were videotaped as they introduced their art work to an audience, explaining what it represented. The students completed a written evaluation of the initiative projects from their point of view in preparation for a public speaking presentation of the project for parents. Evaluation questions related to attitude towards the project, what graphics tools were used most successfully, interpretation of process and meaning of pictures, and how lessons connected with understanding principles and elements of art. Most students comfortably participated in the public presentation. Students were very articulate and confident in communicating the meaning of their work, what they had learned, and their opinion about the initiative.

Middle School

The art initiative at the Middle School was designed to give advanced art

students an experience that was relevant to art as used in more of a commercial atmosphere. 75 seventh and eighth grade introductory and advanced art students rotated out of the 6th and 8th period art classes into the Macintosh lab. Computer graphics are familiar to them in their exposure to commercials, MTV, Nintendo, and film. It was important to give them some understanding of the talents and tools behind these innovations.

Nine color Macintosh LCII computers were available for two periods during the day. The lab was equipped with a Macintosh Quadra 950 which allowed all of the students' computers to be networked to the Quadra and the laser and imagewriter printers. The color printer was not on the network. The software used was *EZ-Color Paint* by MECC. In our research, this was the most economical for the capabilities. All of the computers also had HyperCard on the hard drive.

The two art classes were divided into 4 groups. It was planned to give all students at least 2-two to three week experiences in the Macintosh lab. It was important that all students stay in the art classroom for the first three weeks to be introduced to all the elements and principles of art plus lessons on contour and on right brain drawing.

It was necessary to change the computer graphics lessons as the semester progressed and students came to the lab with different exposure to art media.

All students needed a lesson on the use of the lab and the software. Learning how to save and retrieve using the network was a necessity. Art graphics take up so much memory, it was a decision not to have students use floppy disks.

Learning to use the software began with an extension of the art class curriculum by having the students do a modified contour drawing of a jars or bottles that were set up as still life models between each two computers. They experimented with line size, shading, shadows, and light source. For many this was a true learning experience with using the mouse as an extension of their hand and mind. They quickly learned the tools that could help them edit. Written evaluations were used to help them to think about this experience and relate it to something else. Although most related it to the art class experience, some reflected that "it was like the first time they learned to draw" or "drawing with my left hand." These black and white drawings were printed on the laser printer in gray scale.

The second lesson was designed around shape. It was also a black and white experience and the experimentation involved creating optical illusions with lines and shapes.

The third lesson began as a black and white but changed to the first color experience. There are many choices of palettes in *EZ-Color Paint.* The goal was to create a three dimensional model by using different tints of the same color. They found that changing palettes completely changed their model, usually not for the better. Discoverers found they could repeat the shape in a different tint instead of using the paint brush. A later group found the blending tool and the fill bucket that would shade the shape almost instantly. By teaching each other, these ideas were quickly passed from one to another. However, as in most things, the purist kept to the original task. They could choose their best to be printed on the HP color printer.

Scenes and Color Change

The National Gallery of Art laser disc gave students a background in how an artist using the same scene will paint it at different times of the day or at different seasons. Monet and the Rouen Cathedral series was one example. The assignment for the students involved creating a black and white scene, saving it as a template, and experimenting with a minimum of two different color palettes. Many students related the scenes to a personal experience or an interest. They might chose pastel for one and bright hues for the other, or experiment with warm and cool colors. During the Art Fair, the three were hung together to show the effects of color.

Xap-Shot Camera Portraits

Students' portraits were taken with the district's xap-shot camera. Using Computer-Eyes these digitized portraits were moved into *EZ-Color Paint*. Before experimenting with changing their image, two artists known for their experimentation with photographs and portraits, Andy Warhol and Ed Paschke, were viewed and discussed.

Using the same idea of having a template, the students renamed the portrait so they could experiment. They learned to cut and paste, to resize, to experiment with a variety of color tools with the goal of presenting themselves differently. They had to be able to explain what they did and why they chose to do so. They presented their portraits to the total art class. Although most eventually felt free to change their images, some only added to the periphery, not willing to appear differently to their peers.

Animation

A final experience in the Macintosh lab was to create animation using HyperCard. This is one experience that is impossible in the art room. Making flip books was a homework assignment so they could understand what HyperCard was really doing. This also helped them to plan how each image had to be slightly different than the one before it. Students learned how to create a background for their image and put navigation tools in place. They learned to cut and paste and place their image from card to card. The goal was 10 cards but some became so involved 30 was not unusual. One student had such an extensive image, it was better to keep the image on the background and change the scenery on each card. The effect was the same. When all of their cards were completed they finished the title screen with the name of their animation and added a button with a special script that when clicked would automatically show all their cards putting the animation to work. It would return to the first card when completed. They printed out their cards, 8 to a page.

During the HMS Art Fest '93, these images plus many of their other products were put into *Kid Pix Companion* and presented as a continuous slide show for the parents to view. 99 images can be stored in one show. The images had to come from the Quadra as disks hold only a few and even the hard drive would fill up.

Time

The timeline for development of an initiative to its approval and implementation maybe as long as 6 to 12 weeks or longer. This is due to taking the idea

through the development stages. The plan is designed and refined, the costs of implementation are gathered, and approval finalized. Once the initiative is approved, it is necessary to obtain the hardware and software, start to gather the data on Method A, inservice any staff that will be involved and set-up a timeline for implementation. If a pretest is to be administered that must be done at the onset. Continuous data must be collected during the implementation.

Evaluation

Evaluation of all initiatives had to be based on the effectiveness of meeting the goals and objectives. There could be a combination of qualitative and quantitative data. A pre-test/ post-test format could be used. Student work could be collected from Method A and compared to student work from Method B. Attitude surveys to staff and students might be administered. New initiatives for the 1993-1994 school year must have some quantifiable data in order to follow the district's strategic planning guidelines.

Third Grade Initiative Evaluation

The third grade art initiative worked as a model because of excellent communication and cooperation, between classroom teachers, art teacher, computer aide, and the Director of technology. Homerooms were divided into two groups per class for graphics instruction so all students had their own computer. Use of the designated homeroom computer period, the computer aide reinforcing art room concepts in pre-computer discussion, and opportunity for on-line learning, provided students a loop for application and transfer of art curriculum concepts outside of the art room. Student written evaluations, the computer graphics, and the feedback from the computer aide, proved to be an excellent evaluation of how well students understood concepts taught in class.

It was concluded that this model should be replicated in elementary buildings at third grade for a six to eight week session in the same basic format as the initiative, including the public presentation piece. The Art Curriculum Committee should consider using technology as one means of assessment for third-grade art curriculum outcomes, based on the initiative evaluation format, benefits, and results.

The school board was very receptive to the continuance of this initiative. The art curriculum committee is researching how this would affect each of their schools. At the present time it has been decided that the same students, now in the fourth grade, will combine art and social studies to use *Dazzle Draw* to create Native American designs. In their study of the Native American cultures they are discovering that the colors, designs, and symbols used depended upon the location of the various cultures in North America. system.

Middle School Art Initiative Evaluation

The middle school art initiative followed a similar evaluation procedure. The students filled out evaluation sheets following each project. Art room projects and computer graphic portfolios representing exceptional, above average, and average ability students in art and computer graphics respectively, were selected for comparison of student achievement based on abilities in art and computer graphics.

• Students were given a pre and post art concept questionnaire

• Art class/Computer Graphics teachers conferenced with students concerning art class and initiative projects during development, completion and critique.

• Students completed written evaluation/ critiques of the initiative lessons/ projects

Evaluation by their peers and parents

All advanced art students shared their portrait projects (studio art - Paschke, and computer art - Paschke or Warhol) with their peers in a whole art class experience. It was evident that there was an increased level of art literacy as students unconsciously used 3 levels of art criticism: description, analysis, interpretation, as they critiqued their work.

The second opportunity came with the HMS Art Fest '93 where parents and other interested adults came to the computer lab and students showed the techniques they had used for their exhibited art work. The whole school was filled with projects from the art classes. The computer lab was the display area for the computer generated projects. Very positive feedback from the parents was evident.

Recommendations

• The computer art experiences available as part of the art program.

• Advanced or independent study art students participants in the computer art experiences.

• Flexible scheduling to allow for varied lengths of project time for both art and computer graphics.

• A computer time-share arrangement developed for four or five students to use 4 or 5 computers in reasonable proximity to the art room.

• Supervision arranged for students' computer art experiences .

• Inservice for graphics art supervision provided.

• Each unit of study in the art program proceeded by an introduction and followed by a whole group critique and/or by a written evaluation.

• Formal instruction in critiquing, followed by practice, a whole class experience.

• Curriculum and scheduling correlated so all the art students receive the same instruction and similar experiences and opportunities.

The school board approved the initiative and plans to continue it with advanced art students are being made. Small groups of students will go to one of the math classrooms to use the five computers of the newly approved math initiative. A Centris 8/230 will act as the server for storing the art projects. The scanner and color printer will be part of the hardware. The only cost for the continuation of the computer graphic program is the Centris and inservice for the instructional aide that will supervise the art students.

Summary

The two art initiatives were a successful implementation of a new approach to blending technology with the curriculum. The need to give students real life experiences that make them aware of the impact of the visual world, gives credence to technology use within the art curricu-

lum. The computer is a way of life and although considered just a tool, Bartscherer and George (1989) stated that tools have an effect on one's thinking and capabilities, and therefore on the results. "The computer is a unique tool, because it can have an impact at many different stages of the design, development and execution of a product. It can act as a thinking tool, a sketch tool, a drafting tool, an editing tool, a visualizing tool, a computing tool, or a production tool" (p. 32). The authors encourage students to note which kinds of shapes and textures can be created easily and which are more difficult; how easily modifications can be done; how line quality is achieved; how illusion of depth or transparency can be achieved, as they are learning to develop their designing skills. It is important that we do all we can to ensure students have these experiences.

References

Bartscherer, P. and George, D. (1989, January/February). Computer imaging overcoming the learning curve: Helpful hints for teachers who want to know everything about computer imaging and don't know where to start. *TIES*, 25-32.

DeMichiell, R. (1990, Summer). Information technology transfer between educators and practitioners: Management strategies for success. *Journal of Research on Computing in Education*, 22(4), 475-490.

Gibbons, J. (Director). (1988). *Power On! New tools for teaching and learning*. Washington, D. C.: Office of Technology Assessment, Congress of the U.S.

Goodson, B. (Ed.) (1991). *Teachers and technology: Staff development for tomorrow's schools*. Alexandria, VA: National School Boards Association.

Gunderson, M. (1993). Technology in the art room. Paper presented at The Role of Technology in Education XIII: Preparing for the 21st Century. St. Charles, IL, February 25 & 26, 1993.

Hunter, P. (1989). Seeing is believing: Visual patterns across the curricula. pp. 229-241. *About Visuals: Research, Teaching and Applications*, Selected Readings from the 20th Annual Conference of the International Visual Literacy Association, Braden, R., Beauchamp, D., Miller, L. & Moore, D.(Eds). VA: Virginia Tech University.

Metallinos, N. (1993). Cognitive factors in the study of visual images: Moving image recognition standards. pp. 453-468. Braden, R., Baca, J., & Beauchamp, D. (Eds). *Art, Science and Visual Literacy, Selected Readings* from the 24th Annual Conference of the International Visual Literacy Association.

Ragan, T. & Rezabek, L. (1987). "Visual processing": Using computers to do for visual literacy instruction what word processing can do for writing instruction. pp. 87-94. *The Role of Imagaes in Instruction & Communication*, Selected Readings from the 18th Annual Conference of the International Visual Literacy Association, Braden, R., Beauchamp, D., & Miller, L. (Eds). TX: East Texas State University.

Scali, N. (1989). Art, computers, and the developing child. Paper presented at National Educational Computing Conference, Boston, MA. June 20-22, 1989.

Thornburg, D. (1991). *Education, technology, and paradigms of change for the 21st century*. CA: Starsung Publications.